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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OSTRUP, CLINTON T				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/551,408

Applicant(s)

IVRI ET AL.

Examiner

CLINTON OSTRUP

Art Unit

3771

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 40-43 is/are pending in the application.
- 4a) Of the above claim(s) 44-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 40-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/C)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 16, 2009 has been entered. As directed by the amendment, claim 40 has been amended; claims 1-39 have been cancelled; and claims 44-56 have been withdrawn. Thus, claims 40-43 are considered below.

Specification

2. The disclosure is objected to because of the following informalities: The specification is objected to because page 18, last paragraph refers to reference character "198" as both "a liquid solution" and "an aerosol generator." Moreover, it is unclear what is meant by "a cup shaped number 200" in the same paragraph.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Appropriate correction is required.

Drawings

4. The drawings are objected to because Figures 1-22 the lines, numbers, and letters are not uniformly thick and well defined. See: attached Form PTO-948. Figure 6

is also objected to because reference character "144" appears to be pointing to the upper portion of the cap, not the "open end" as described in the specification. Figure 6 is also objected to because reference character "40" appears to be mislabeled, as it is pointing to a "piston pump" not an "aperture plate". Figure 7 is objected to because reference characters "40", "44", "46" and "48" appear to be mislabeled. Figure 8 is objected to because reference characters "40" and "56" appear to be mislabeled.

5. Figure 9 is objected to because it is unclear if the reference character to the left about 2/3 down the page is referring to reference number "140" or "146". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ivri et al. (WO 97/07896) in view of Robertson, et al. (US 5,487,378).

Regarding claim 40, Ivri et al., disclose a method of aerosolizing (nebulizing) a liquid, comprising the steps of forming a vibratable aperture plate (Figure 13A shows an a vibratable aperture plate with a thin shell member) , the aperture plate having a front surface (top) and a rear surface (bottom), the aperture plate being formed to form a plurality of tapered conical-shaped apertures (Figures 6 & 7) extending from the rear surface to the front surface, the plurality of apertures being tapered to narrow from the rear surface to the front surface, the aperture plate (Figure 13A) further being formed to have a dome shape (Figure 13A), mounting the vibratable aperture plate (Figures 2, 13 and 20) upon a support member (26, 166, 230) wherein substantially all of a vibratable portion (thin shell member) of the aperture plate not directly mounted to the support member (the dome portion forming the thin shell member) comprises the dome shape: providing a fluid (42 in figure 2) at the rear surface of the aperture plate; and vibrating the aperture plate to eject the fluid through the plurality of tapered conical-shaped apertures. See: page 5, line 16 to page 7, line 2.

However, Ivri lacks the specific teaching of electroforming the vibratable aperture plate of palladium or a palladium alloy and the palladium or palladium alloy aperture plate being electroformed to form the plurality of tapered conical-shaped apertures.

Robertson et al. teaches a method of aerosolizing a liquid including the steps of electroforming a metal or metal alloy plate (e.g. nickel; col. 11, lines 22-23) to have apertures which taper smaller going from a back surface to the front surface where the droplets will be released; providing liquid at the rear surface of the plate; and vibrating the plate to eject fluid droplets through the apertures (col. 2, lines 48-64; col. 3 lines, 24-52; col. 11, lines 21-23) and that all surfaces in contact with the liquid may be coated with a protective layer to prevent corrosion. See: col. 11, lines 8-23.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of nebulizing a liquid, as disclosed by Ivri, by electroforming a metal or metal alloy plate, as taught by Robertson, with the dome shape having tapered apertures, as disclosed by Ivri, in order to provide these surfaces with a protective layer to prevent corrosion since these parts are in contact with the liquid in Ivri.

8. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ivri et al. (WO 97/07896) and Robertson, et al. (US 5,487,378), as applied to claim 1 above, and further in view of Abys et al (4,911,798).

The combined references teach all the limitations of claims 41-42, except the electroforming step being carried out with the aperture plate being palladium cobalt or palladium nickel.

Abys teaches that Palladium metal and alloys are used as protective coatings, are chemically inert, are hard and wear well and do not form oxide surface coatings. Abys specifically teaches that palladium-nickel and palladium-cobalt alloys are advantageous used in electroplating because the plating potential for the pairs of metals (e.g. palladium and nickel) are close together and well removed from the hydrogen evolution potential. Moreover, Abys teaches that typical alloying metals are silver, copper, nickel, cobalt, gold, chromium, manganese, ruthenium, rhodium, platinum and iridium; but specifically teaches that particularly useful are copper, nickel, cobalt and silver with the preferred alloys comprising at least 10 mole percent palladium, remainder copper, nickel, cobalt and/or silver. Other useful alloys are 40, 60 or 80 mole percent palladium, remainder silver, nickel, cobalt and/or silver. See: col. 1, lines 20-43; col. 3, lines 45-62; col. 6, lines 36-45; and claims 1-5 & 9-10.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used palladium-nickel or palladium-cobalt alloys, as taught by Abys, in order to electroform the aperture plate, as taught by Robertson, with a dome shape having tapered apertures therethrough, as disclosed by Ivri, with a protective layer, using a well known palladium alloy for its art recognized purpose, which is to provide a protective layer using metal alloys that are inert, hard and wear well.

Regarding claim 43, Abys teaches useful alloy metals are 40, 60, or 80 mole percent palladium, remainder silver, nickel, cobalt, and/or silver. Moreover, differences in concentration will not support the patentability of subject matter encompassed by the

prior art because it is not inventive to discover the optimum or workable ranges by routine experimentation.

Response to Arguments

9. Applicant's arguments with respect to claims 40-43 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ivri et al (5,586,550); Klimowicz et al (6,427,682); Ivri et al (5,758,637); Haber et al (5,435,282); and Ivri et al (WO 96/31289A1), which all disclose nebulizer devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLINTON OSTRUP whose telephone number is (571)272-5559. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3771

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Clinton Ostrup/
Examiner, Art Unit 3771

/Justine R Yu/
Supervisory Patent Examiner, Art Unit 3771